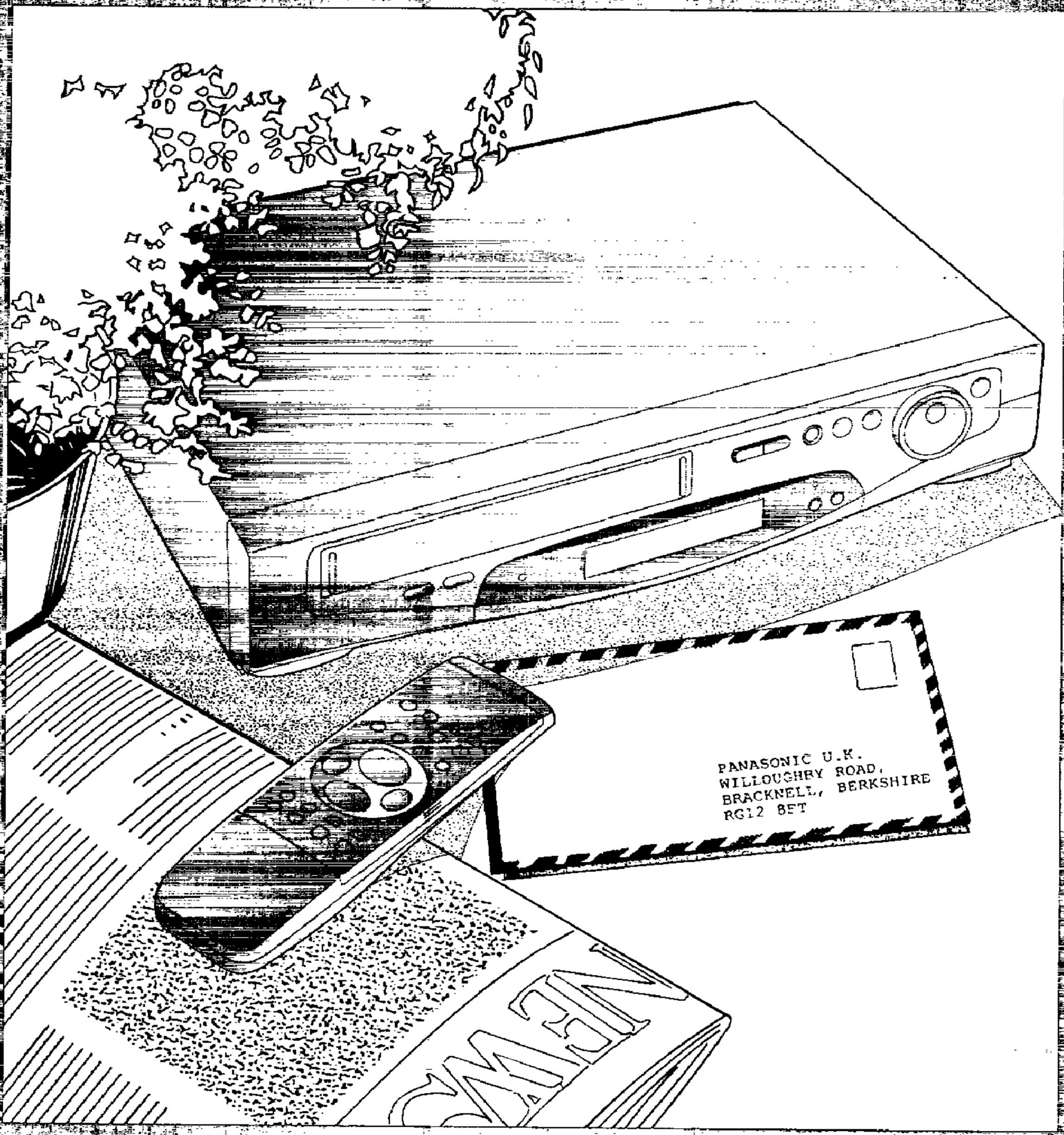
Panasonic

Video Cassette Recorder

NV-SD350/450

Operating Instructions



VIDEO Plus+

VHS PAL

SUPER DRIVE

Before attempting to connect, operate or adjust this product, please read these instructions completely.

Dear Customer

May we take this opportunity to thank you for purchasing this Panasonic Video Cassette Recorder.

We would particularly advise that you carefully study the Operating Instructions before attempting to operate the unit and that you note the listed precautions.

Auto Setup

Connect the aerial lead and the mains lead. (See page 8.)

↓

Turn on the VCR.

↓

Auto Setup is finished.

Video Plus+ Programming System

Programming is now easier than ever: simply enter the PlusCode provided in the programme schedule column carried by newspapers and magazines.

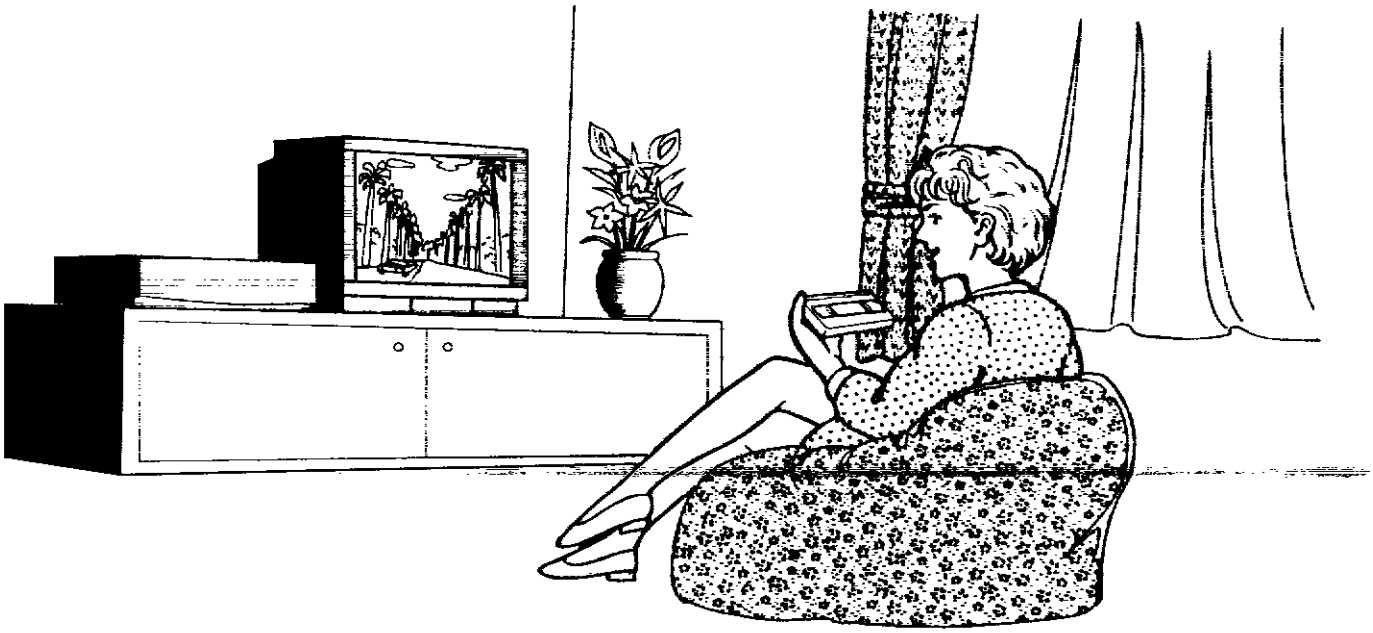
- Video Plus+ and PlusCode are trademarks of Gemstar Development Corp. Video Plus+ system is manufactured under license from Gemstar Development Corporation.

Crystal View Control

Introducing Crystal View Control, and innovative new technology for high picture quality. This technology uses a CVC microprocessor to intelligently control the relationship between the tape heads and circuitry, bringing out the maximum performance of each. The result is consistently optimum picture quality.

HQ (High Quality) Picture System

Video recorders carrying the HQ symbol mark feature the new VHS High Quality Picture System. This system assures complete compatibility with VCRs that use the conventional VHS system.



IMPORTANT

Your attention is drawn to the fact that the recording of pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.

WARNING

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

FOR YOUR SAFETY

■ **DO NOT REMOVE OUTER COVER.**
To prevent electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

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Caution for AC Mains Lead

For your safety please read the following text carefully

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 5 amp fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5 amps and that it is approved by ASTA or BSI to BS 1362.
Check for the ASTA mark Ⓐ or the BSI mark ♡ on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local Panasonic Dealer.

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY. THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13 AMP SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.
If in any doubt please consult a qualified electrician.

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral
Brown: Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

Under no circumstance should either of these wires be connected to the earth terminal of the three pin plug, marked with the letter E or the Earth Symbol ⏚.

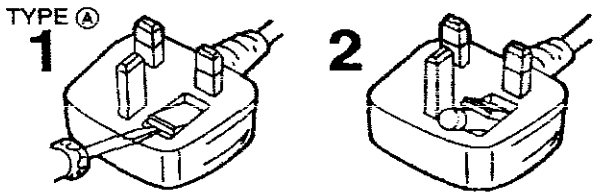
How to replace the Fuse

- There are two types of the AC Mains Lead assembly: Ⓐ and Ⓑ as shown below

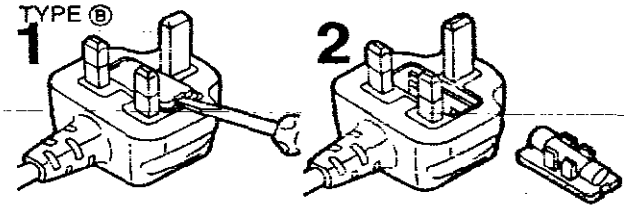
1 Open the fuse compartment with a screwdriver.

2 Replace the fuse and fuse cover.

TYPE Ⓐ

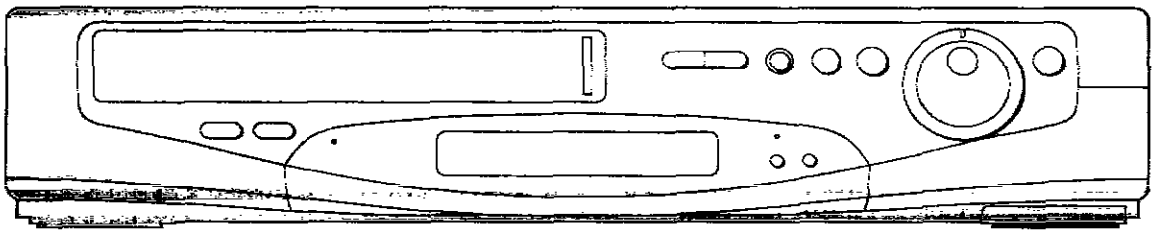


TYPE Ⓑ

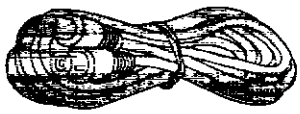


Unpacking

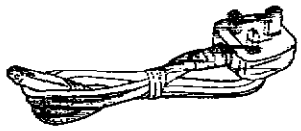
Check and identify the supplied accessories, and then set up this VCR after reading "Setting up".



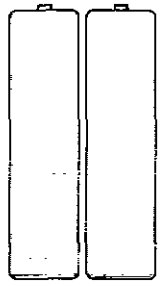
☐ RF coaxial cable for connecting between this VCR and a TV (1 pc.) VJA0710-1 or VJA0728



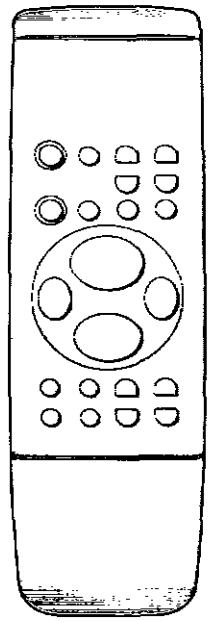
☐ AC mains lead (1 pc.) VJA0733



☐ Batteries for the remote controller (2 pcs.) UM3 or R6 type



☐ Remote controller (1 pc.) VEQ1693



Setting Up

Connections

This tells you how to connect with an aerial, TV, etc.

Tuning the TV to your VCR

The VCR supplies a signal to the TV set via the RF coaxial cable on channel 36 of the UK broadcasting system. Your TV must be tuned into this channel in order to view the VCR playback picture.

If the connection to the TV includes the 21-pin scart cable, the playback picture can be viewed by selecting AV on your TV. The RF coaxial cable must still be connected as shown on page 8, but the TV need not be tuned to channel 36.

Auto Setup

When the VCR is turned on after connecting the aerial lead and the mains lead, Auto setup (Auto tuning and Auto clock setting) starts.

Infra-red Remote Controller

Controls and Connection Sockets

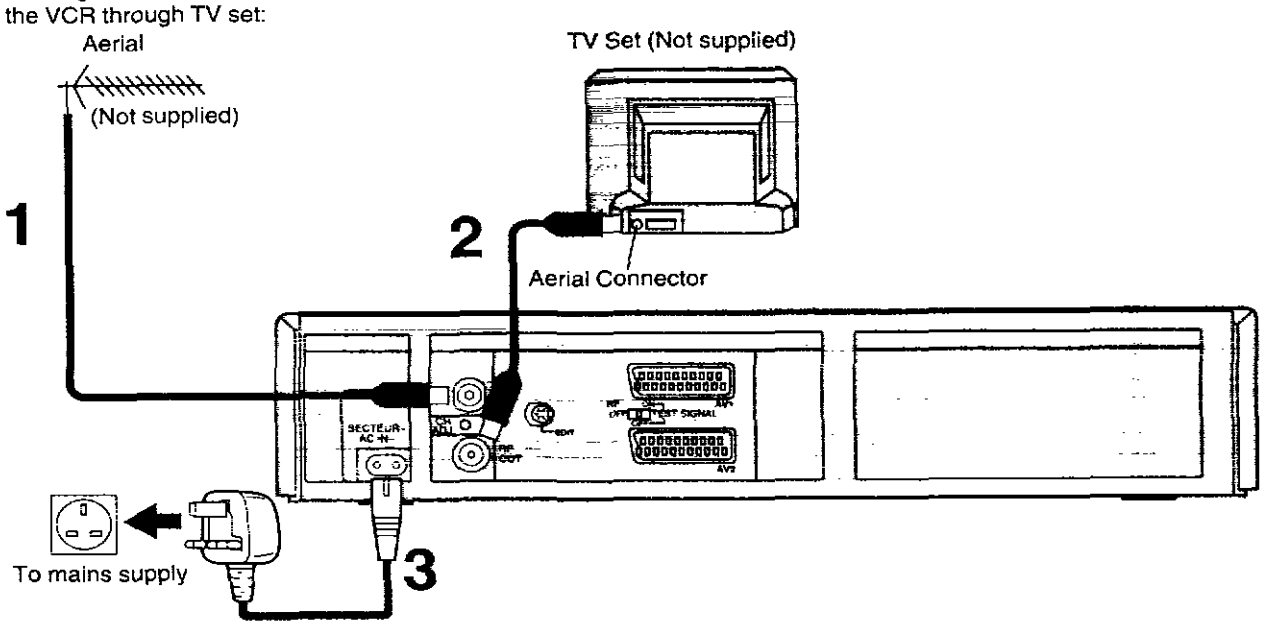
This gives a detailed explanation of the function of each button, switch and connection socket.

Connections

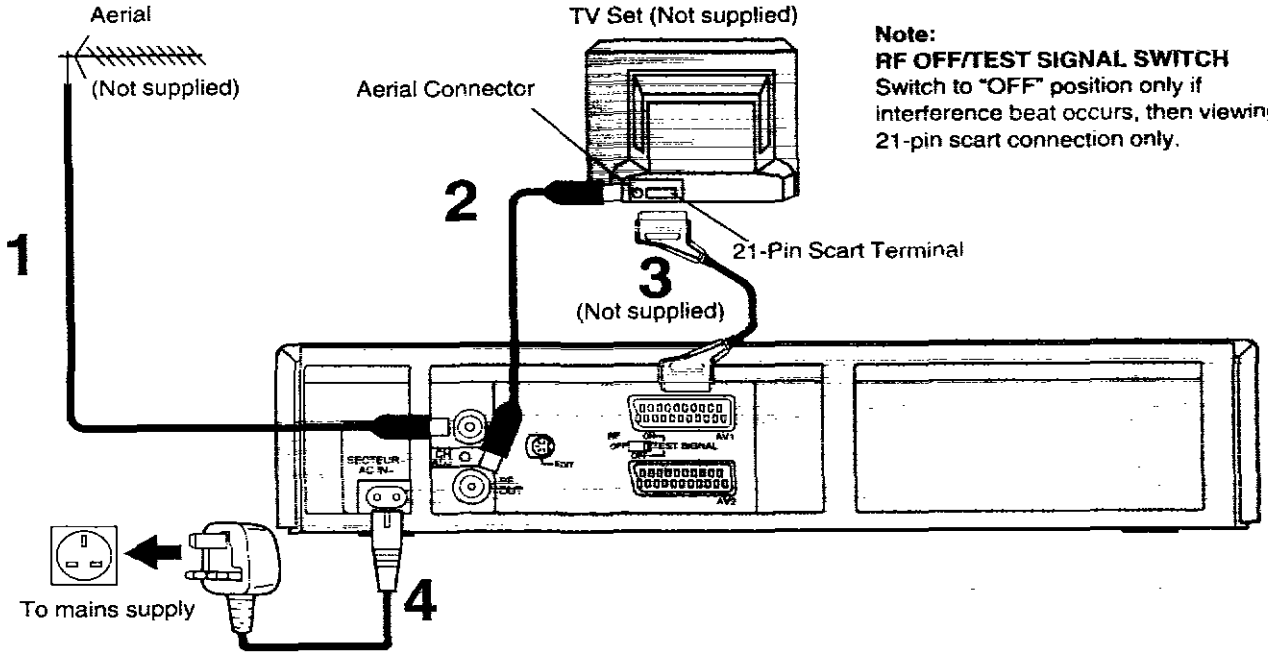
This tells you how to connect with an aerial, TV, etc.

Basic Connections

The following connections are required to record and play back the VCR through TV set:

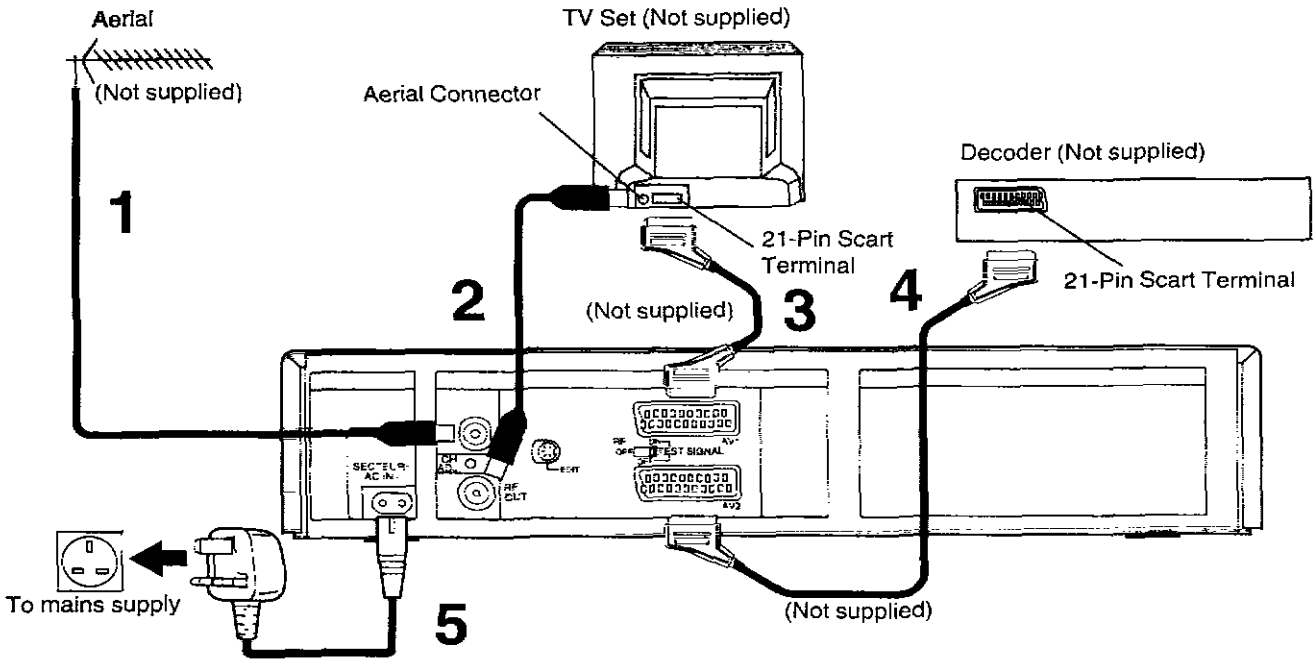


Connection to a TV Set with 21-Pin Scart Terminal



Note:
RF OFF/TEST SIGNAL SWITCH
Switch to "OFF" position only if interference beat occurs, then viewing via 21-pin scart connection only.

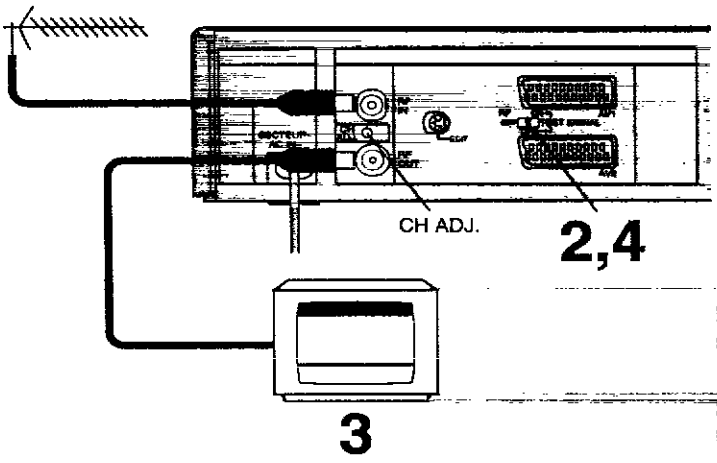
Connection to a Decoder

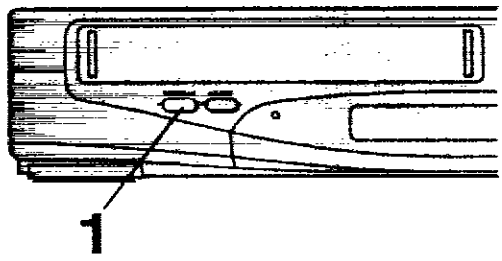


Notes:

- "RGB" is an abbreviation for "RED/GREEN/BLUE" signals. If the TV with RGB input capability is connected to AV1 and the unit with RGB output capability is connected to AV2, the TV can receive RGB signal from the unit through the VCR.
- Use full-wired 21-pin AV cables for the connection.
- Selection of RGB or normal video output is done by the external equipment connected to AV2 terminal.
- **RF OFF/TEST SIGNAL SWITCH**
  Switch to "OFF" position only if interference beat occurs, then viewing via 21-pin scart connection only.

Tuning the TV to your VCR





It is possible to view the video picture on your TV in the same way that you watch TV broadcasts.

If you have connected the VCR to the TV through the 21-pin scart terminal, then you do not need to follow the procedure mentioned below.

Preparation

- Turn on the TV.
- Refer to the operating instruction of the TV set and carry out tuning/preset procedure.

Operations

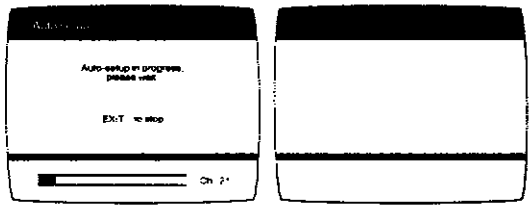
1 POWER

Turn on the VCR.

2 RF ON / OFF TEST SIGNAL / OFF

To generate a test pattern, set **RF OFF/ TEST SIGNAL** to TEST SIGNAL ON.

3 On Screen Display



(During Auto Setup) (After Auto Setup)

Set the TV to an unused position which you wish to use for your video playback.

- Tune the TV until the test pattern appears on the screen.
- On Panasonic TV the programme number 0 should be selected to obtain best performance.
- When the VCR is turned on after connecting the aerial lead and the mains lead, Auto setup (Auto tuning and Auto clock setting) starts. (See next page.)

4 RF ON / OFF TEST SIGNAL / OFF

Set **RF OFF/TEST SIGNAL** to TEST SIGNAL OFF.

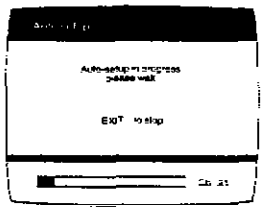
Note:
The test signal is transmitted on channel 36 of the UK broadcasting channels. If you are encountering interference from another broadcast on the video channel, you may readjust to a free channel (30–42) by using the **CH ADJ.** screw which is located on the rear of the VCR. Please note that if the **CH ADJ.** screw is used then you will have to retune your TV to the test signal as in item **2** to **4** above.

Auto Setup

Auto Setup

When the VCR is turned on after connecting the aerial lead and the mains lead, Auto setup (Auto tuning and Auto clock setting) starts.

On Screen Display



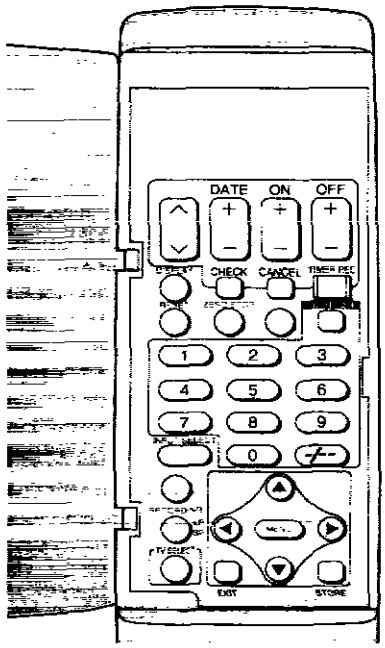
- The Auto setup is searching for TV station from minimum to maximum and memorizing the data for every programme position.
- The Auto setup takes two or more minutes to complete the search for TV station and the clock setting.
- If the clock setting screen appears after auto setup has been completed, refer to page 39 and proceed with the setting.

Note:
If VCR is not correctly set by Auto setup, see **Various Settings** on pages 34, 35 and 39.

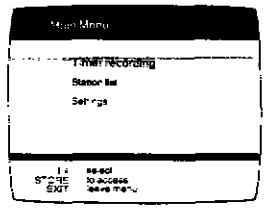
Viewing the TV station list

Preparations

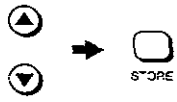
- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.

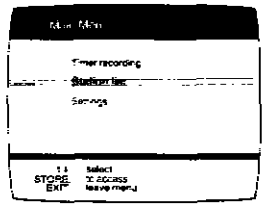


1 Press **MENU**.

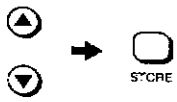


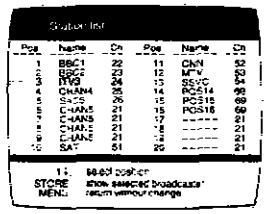
2 Select **Station list**.



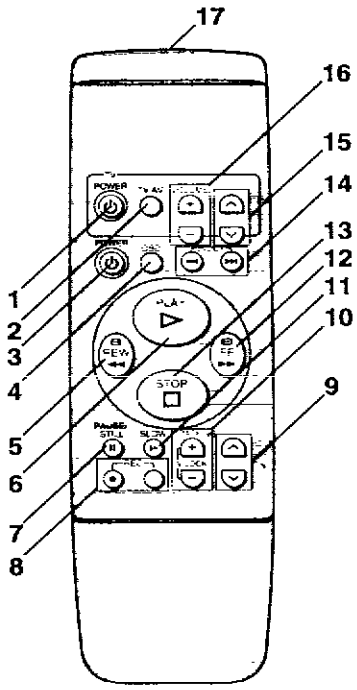


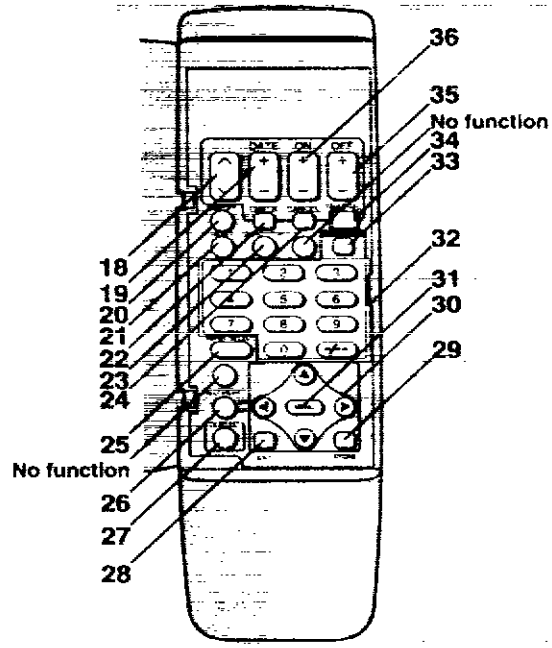
3 Select the desired TV station, if you want to view the broadcast.





Infra-red Remote Controller





1 POWER (TV)
To switch the TV from on to standby mode or vice versa. In standby mode, the TV is still connected to the mains.
- With some TV models, it may only be possible to switch the TV to standby mode using this button. In this case, use **TV/AV** or ∨ ∧ **(TV)** to switch the TV on.

2 TV/AV
To select the TV input.

3 POWER (VCR)
To switch the VCR from on to standby mode or vice versa. In standby mode, the VCR is still connected to the mains.

4 OSD
For the On Screen Display Function.

5 REW (REWIND)

In the stop mode:	To rewind the tape.
In the playback mode:	To search backward.
In the rewind mode:	To obtain high speed picture.

"◁◁" is lit.

6 PLAY
To start playback. ">" is lit.

7 PAUSE/STILL
During playback: Still picture.
During recording: To interrupt recording.

8 REC
To start a recording.
- Press both buttons simultaneously.

9 ∨ ∧ (VCR)
To select the required programme position (TV station) of the VCR.

10 TRACKING/V-LOCK
To adjust the tracking and the vertical locking. (See page 19.)

11 SLOW
For the slow motion playback function. "▯▷" is lit.

12 FF (FAST FORWARD)

In the stop mode:	To fast forward the tape.
In the playback mode:	To search forward.
In the fast forward mode:	To obtain high speed picture.

"▷▷" is lit.

13 STOP
To stop any playback or recording.

14 INDEX
For the index search function.

15 ∨ ∧ (TV)
To select the required programme position (TV station) of the TV.

16 VOLUME
To adjust the volume of the TV.

17 Infra-red Transmitter
The programming data are transmitted from here to the VCR.

18 ∨ ∧
To programme a timer recording.

19 DATE
To programme a timer recording.

20 DISPLAY
To change the indication on the VCR Display.
→Clock→Counter→Remaining Tape Time

21 RESET
To reset the tape counter (elapsed time) to "0:00.00".
•The tape counter is automatically reset to "0:00.00" when a video cassette is inserted.

22 CHECK
To check timer programmes.

23 ZERO STOP
For the zero stop function.

24 CANCEL
To cancel the settings made for a timer recording.

25 INPUT SELECT
To select the A1, A2 or A3 external recording source.

26 RECORDING SP/LP
To select the tape speed desired for recording.
SP gives the best picture quality.
LP gives the longest recording time.

27 TV SELECT
To set the remote controller for operation of the TV.

28 EXIT
To make On Screen Display disappear on the TV screen.

29 STORE
To make selections from On Screen Display.

30 ▲ ▼ ◄ ►
To make selections from On Screen Display.

31 MENU
To make On Screen Display **Main Menu** appear on the TV screen.

32 Programme Position Selector Buttons
•To select the programme positions (1–99).

9: (9)
19: (-/--) → (1) → (9)

•To enter a PlusCode.

33 VIDEO PLUS+
For the Video Plus+ programming.

34 TIMER REC
To turn the timer recording function on and off.
⏲ is lit or not lit.
Once operating timer recording function, the normal VCR operation is not possible unless this button is set to off.

35 OFF
•To programme a timer recording.
•To set the manufacturer number of the TV.

36 ON
To programme a timer recording.

How to select the remote control mode

This remote controller has two remote control modes VCR1 and VCR2.

Ⓐ Remote control mode VCR1:
Press ▲ while holding **TV SELECT**.
Set to this position on both the VCR and remote controller for normal use with one VCR.

Ⓑ Remote control mode VCR2:
Press ▼ while holding **TV SELECT**.
Set to this position when using two Panasonic VCRs.

Ⓒ When the VCR mode is not known: Point the remote controller at the VCR and proceed with step Ⓐ or Ⓑ. If the mode established matches the VCR mode, the VCR's power supply operates.

Refer to page 38 as well.

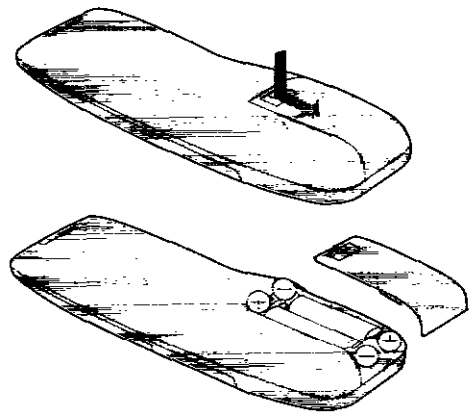
Power Source for the Remote Controller

The remote controller is powered by 2 "AA", "UM3" or "R6" size batteries. The life of the batteries is about one year, although this depends on the frequency of use.

Precautions for Battery Replacement

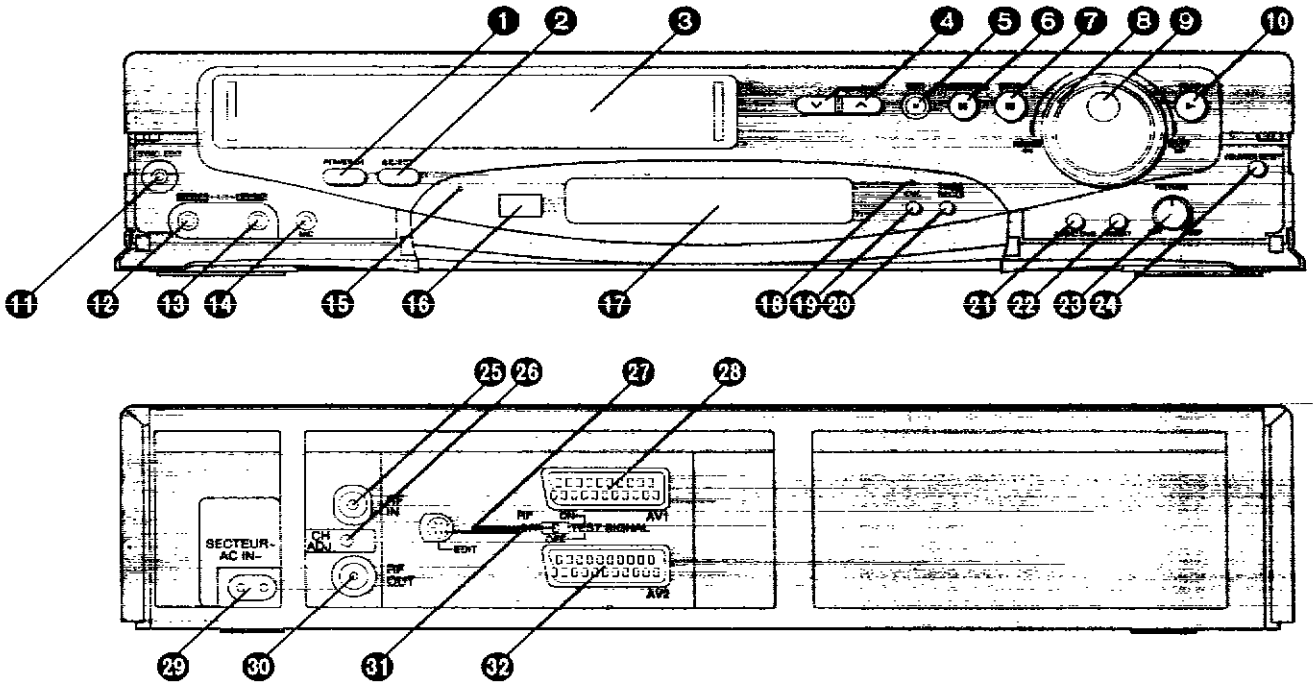
•Load the new batteries with their polarity (⊕ and ⊖) aligned correctly.
•Do not apply heat to the batteries, or an internal short-circuit may occur.
•If you do not intend to use the remote controller for a long period of time, remove the batteries and store them in a cool and dry place.
•Remove spent batteries immediately and dispose of them.
•Do not use an old and a new battery together, and never use an alkaline battery with a manganese battery.

Installing the Batteries



Controls and Connection Sockets

This gives a detailed explanation of the function of each button, switch and connection socket.



❶ **POWER ⏻/I**
Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still connected to the mains.

❷ **EJECT**
To eject a video cassette.

❸ **Cassette Compartment**
Insert a video cassette here.

❹ **∨ ∧**
To select the required programme position (TV station).

❺ **REC**
To start a recording.

❻ **PAUSE/STILL**
In the stop mode: Still picture (Jog/Shuttle mode).
During playback: Still picture (Jog/Shuttle mode).
During recording: To interrupt recording.

❼ **STOP**
To stop any playback or recording.

❽ **Shuttle Ring**
In the stop mode: To rewind or fast forward the tape.
In the playback mode:
To search picture backward or forward.
In the still playback mode:
To adjust playback speed backward or forward.
In the rewind or fast forward mode:
To obtain high speed picture.

❾ **Jog Dial**
To locate any desired frame with utmost precision.

❿ **PLAY**
To start playback. "▷" is lit.

⓫ **SYNC. EDIT**
To connect a movie camera or another VCR equipped with synchronized editing capability.
To connect a movie camera or another VCR equipped with LANC socket for One-Touch-Editing.

⓬ **VIDEO IN (AV3)**
To connect the video cable to a movie camera or to another VCR.

⓭ **AUDIO IN (AV3)**
To connect the audio cable to a movie camera or to another VCR.

⓮ **MIC**
To connect a microphone for recording. Once connected, this socket has priority.

⓯ **Standby Indicator**
This indicator is lit when the VCR is turned off or the VCR is timer recording standby mode.

⓰ **Infra-red Remote Control Receiver Window**

⓱ **Display**

⓲ **CVC Indicator**
When the CVC function is on, this indicator is lit.

⑲ **CVC (Crystal View Control)**
ON: Using the CVC function, playback and recording are performed in the state which achieves optimum picture quality in light of characteristics of a tape.
- The CVC indicator is lit.
- This control should normally be left in the ON position.

OFF: Turn off the CVC function.
- The CVC indicator is not lit.

⑳ **TIMER REC**
To turn the timer recording function on and off.
⏲ is lit or not lit.
Once operating timer recording function, the normal VCR operation is not possible unless this button is set to off.

㉑ **AUDIO DUB**
To set up the VCR for audio dubbing.
A DUB is appeared on screen display.

㉒ **INSERT**
To set up the VCR for insert editing.
INSERT is appeared on screen display.

㉓ **PICTURE**
To make picture sharper (SHARP) or softer (SOFT).

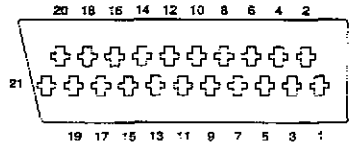
㉔ **COUNTER RESET**
To reset the tape counter (elapsed time) to "0:00.00".
- The tape counter is automatically reset to "0:00.00" when a video cassette is inserted.

㉕ **RF IN**
To connect to the external aerial.

㉖ **CH ADJ.**
To adjust the RF transmitting channel 30–42.

㉗ **RF OFF/TEST SIGNAL**
RF OFF: Set to this position when the VCR is connected to the TV via the 21-pin scart cable.
TEST SIGNAL OFF:
Set to this position when the VCR is connected to the TV via the RF coaxial cable only.
TEST SIGNAL ON:
Set to this position when tuning the TV into the VCR.
The test signal is transmitted on channel 36 initially.

㉘ **AV1**
This 21-pin scart terminal carries input and output signals for both picture and sound. TV sets equipped with a similar socket can be connected here.
This is also called Scart
Peritel
Euro Connector
Euro AV



1	AUDIO OUTPUT	13	RED GROUND
2	AUDIO INPUT	14	BLANKING GROUND
3	AUDIO OUTPUT		
4	AUDIO GROUND	15	RED
5	BLUE GROUND	16	BLANKING
6	AUDIO INPUT	17	VIDEO OUTPUT GROUND
7	BLUE		
8	SWITCHING VOLTAGE	18	VIDEO INPUT GROUND
9	GREEN GROUND		
10	No connection	19	VIDEO OUTPUT
11	GREEN	20	VIDEO INPUT
12	No connection	21	GROUND

Note: RED, GREEN and BLUE are inputs only.

㉙ **AC IN~**
To connect to the main power supply.

㉚ **RF OUT**
To connect to the aerial terminal on a TV set.

㉛ **EDIT**
By connecting the optional Editing Controller (VW-EC300E/VW-EC310E) to this socket, such editing functions as Assemble Editing, Insert Editing and Audio Dubbing can be performed more quickly and efficiently between two VCRs or between a VCR and a movie camera.

To connect the Edit cable (VW-K5E) to a movie camera or to another VCR for One-Touch-Editing.

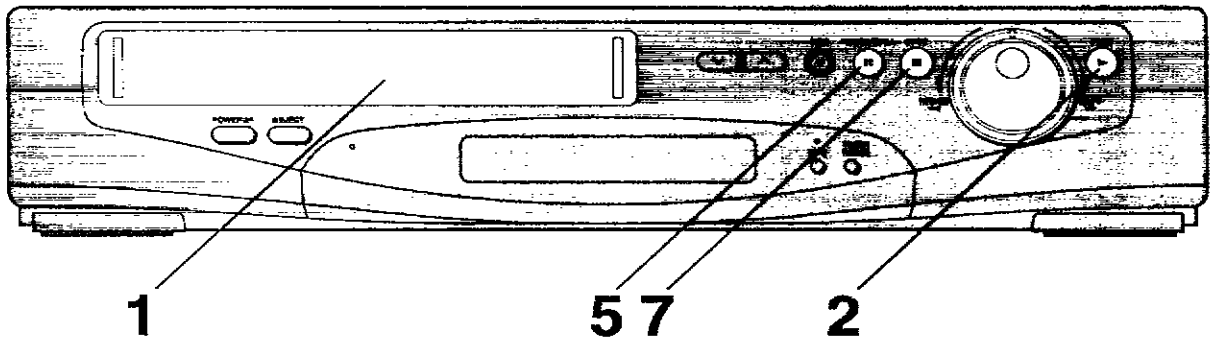
㉜ **AV2**
To connect to a decoder or another VCR.
- The 21-pin list is same with AV1.

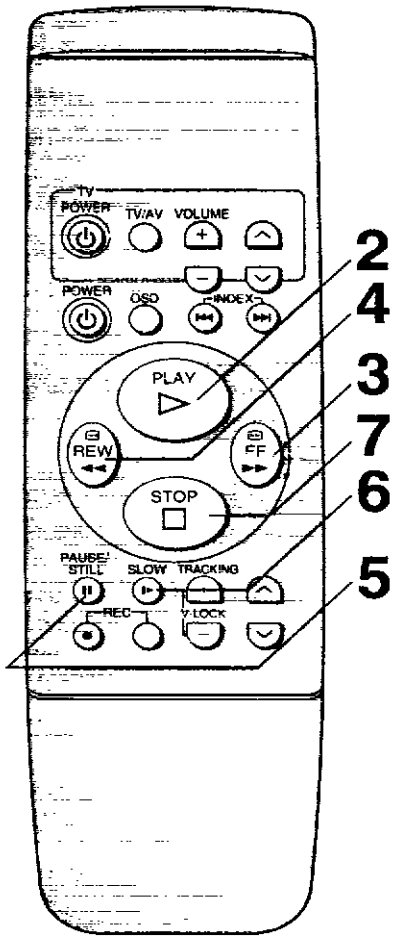
Basic Operations

Playback

Manual Recording

Playback





Operations	Display Symbols	
1		Insert a recorded cassette tape.
2 PLAY		Start viewing the picture.
3 FF		Search forward by briefly pressing **FF**. ●To change back to normal playback, press **PLAY**.
4 REW		Search backward by briefly pressing **REW**. ●To change back to normal playback, press **PLAY**.
5 PAUSE/ STILL		View a still picture. ●To continue the normal playback, press **PLAY** or **PAUSE/STILL**.
6 SLOW		View the slow motion picture. ●To continue the normal playback, press **PLAY**.
7 STOP		Stop viewing the picture.

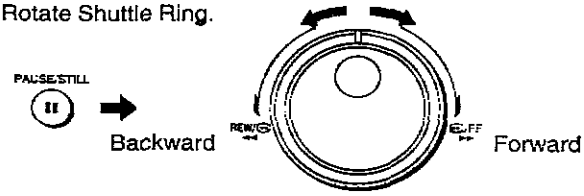
Other Playback Functions

To change the Playback Speed

Using Shuttle Ring:

1 Press **PAUSE/STILL** on the VCR.

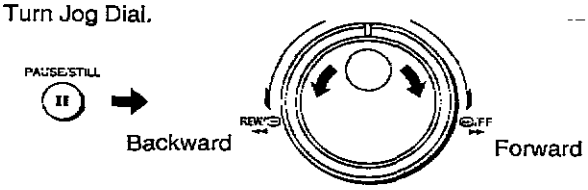
2 Rotate Shuttle Ring.



To locate the Desired Picture Exactly

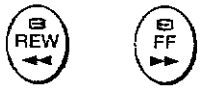
1 Press **PAUSE/STILL** on the VCR.

2 Turn Jog Dial.



To obtain High Speed Picture during Fast Forward or Rewind

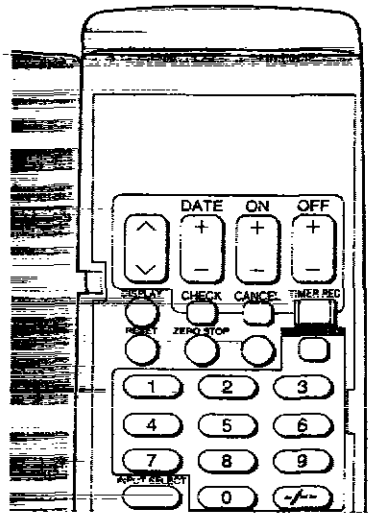
Keep **FF** pressed during fast forward.
Keep **REW** pressed during rewind.



To return to a Specified Scene

1 Press **RESET** to set the counter to 0:00.00.

2 After playback, press **ZERO STOP** in the stop mode.
- The tape will be rewound or fast forwarded to 0:00.00 approximately.



To adjust the tracking and the vertical locking

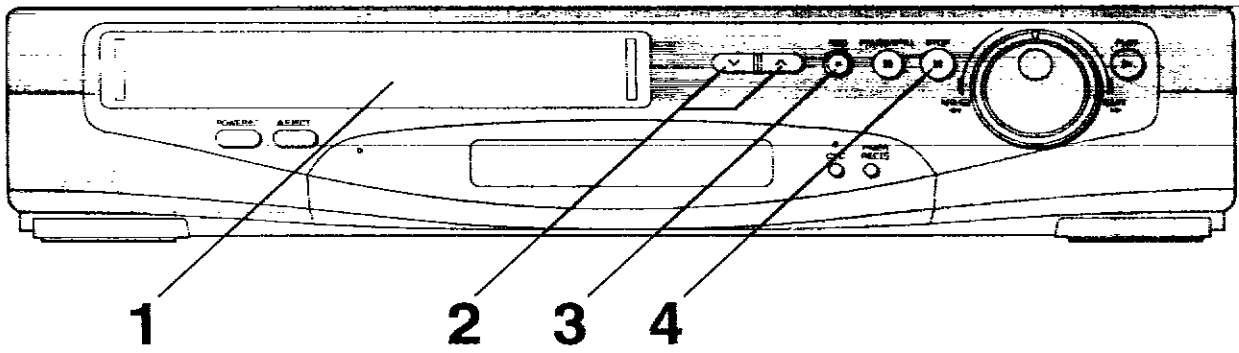
For manual tracking adjustment
The + and – buttons are used to adjust the tracking when, for example, noise bars on the picture are better removed manually than by the automatic digital tracking control.
Press both buttons together to return to automatic digital tracking control.

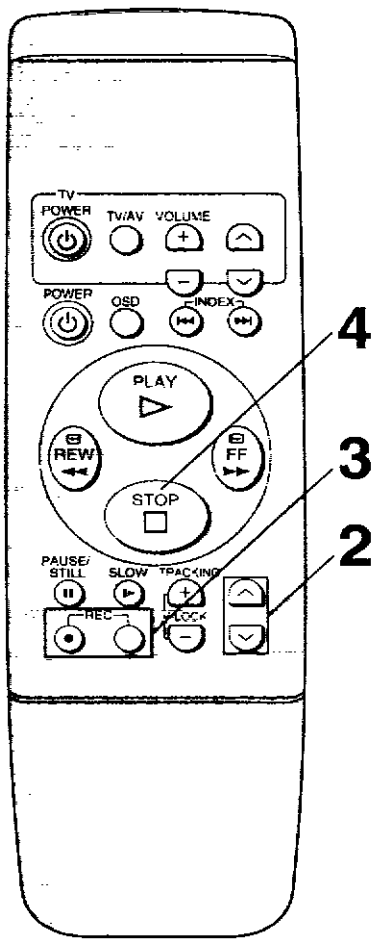
For slow tracking adjustment
When noise bars appear during Still or Slow playback, switch over to slow playback and adjust with the + or – button to reduce the noise bars.

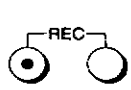
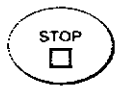
For vertical locking adjustment
Use the + and – buttons to minimize any vertical jitter during still-picture playback.
- Even after manual adjustment, noise bars or vertical jitter may not be eliminated completely, especially for tapes recorded on another VCR. This is not malfunction.

Notes:
- Cue, review or slow playback will be automatically released after 10 minutes, and still playback after 5 minutes.
- In "LP" mode only:
  1. During any playback mode other than normal playback, the picture may have some noise bars, the colour may be unstable, or a black and white picture may appear.
  2. When playing back a tape which was recorded on another VCR, it may be necessary to adjust the Tracking Control. In some cases the picture quality may still be inferior. This is due to limitation of format.

Manual Recording





Operations	Display Symbols	
1		Insert a cassette tape. ●If it has already been inserted, press **POWER** to turn the VCR on.
2		Select TV station.
3 		Start recording.
4 		Stop recording.

To select the Desired Tape Speed

Press **RECORDING SP/LP** before recording.

SP gives the best picture quality.
LP gives the longest recording time.

To interrupt Recording

Press **PAUSE/STILL** during recording.
Press again to continue recording.

To record One TV Programme while Viewing Another Programme

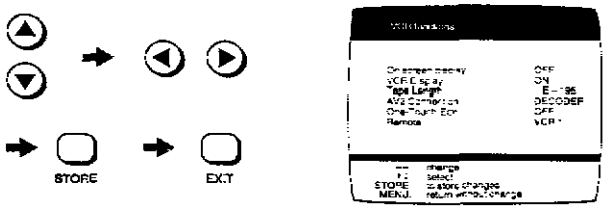
1 Refer to the manual recording operations steps **1** to **3** (page 20).

2 Select the TV programme on your TV set you wish to view at the present time.

To display the Approximate Remaining Tape Time

1 Select **Tape Length** from On Screen Display and select the corresponding cassette tape length. See page 37.

On Screen Display



◄ E-180: For E30, -60, -90, -120 and -180 tapes.
E-195: For E195 tape.
E-240: For E240 tape.
E-260 ►: For E260 and -300 tapes.

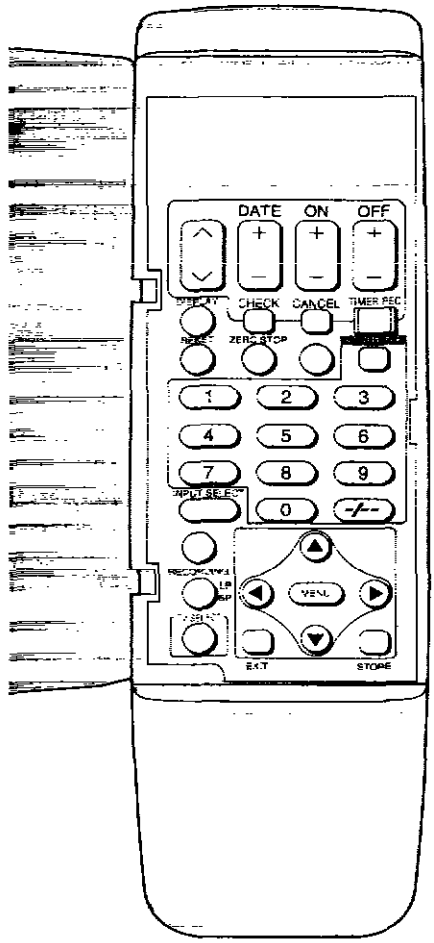
2 Press **DISPLAY**.

→Clock→Counter→**Remaining Tape Time**

- The remaining tape time may not be displayed correctly depending on the tape used.

Notes:

- When a video cassette with a broken off tab is inserted, the "⊙" indication will flash to indicate that recording is not possible.
- The recording pause mode will be automatically released after 5 minutes and be back to the stop mode.



Advanced Operations

Timer Recording

Using On Screen Display
Programming the Video Plus+ PlusCode
Up to 8 timer programmes can be recorded up to one month in advance by setting the timer.

Editing

Assembly Editing
This enables you to record a new segment immediately after a previously recorded segment.

Insert Editing
This editing method allows a new recorded segment to be inserted into an existing recording to replace an existing segment of the same length.

Audio Dubbing
This enables you to record new sound on a previously recorded tape.

One-Touch-Editing
With this editing, it is easy to perform repeated assemble editing, insert editing or audio dubbing operations.

Other Functions

On Screen Display
VHS Index Search System
NTSC Playback
Other Automatic Functions

Timer Recording

Using On Screen Display

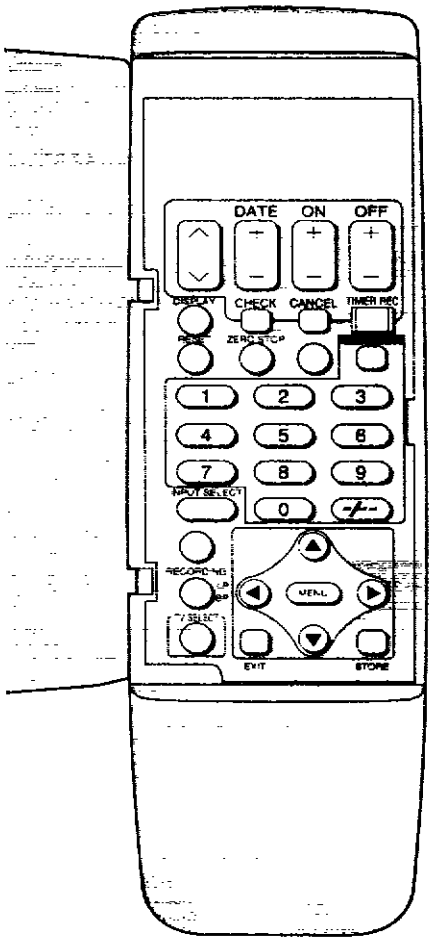
Up to 8 timer programmes can be recorded up to one month in advance by setting the timer, including weekly and daily programmes.

Preparations

- Insert a cassette tape with an intact erasure prevention tab.
- Confirm that the TV is on and the VCR viewing channel is selected.

For Example:

Programme position (channel); 2
Date; 27th, October
Starting time; 20:02
Ending time; 21:30
(Present date; 16th. October)



Follow the operation guide on screen display.
Set each item by using ▲ ▼ ◄ ► or ∧ ∨, **DATE**, **ON**, **OFF**.

Operations

1 Press **MENU**, and then select **Timer recording**.

2 Select the unoccupied position.

3 Set **Programme position** (channel) "2".

4 Set **Date** "27/10".

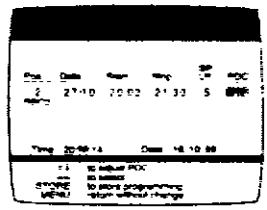
5 Set **Starting time** "20:02".
- When it is kept pressed, the indication changes in 30-minute steps.

6 Set **Ending time** "21:30".

7 Select the desired **Tape speed (SP/LP)**.

8 Select **PDC ON** or **OFF (---)**.

On Screen Display



- PDC is automatically set to ON if the TV station transmits PDC signals. But it can be set to OFF manually if desired.

9 Press **STORE**.

10 To activate timer recording, press **TIMER REC**.

Weekly Timer Recording

In step **4**, select the desired day by pressing ▼ or **DATE** −.

Daily Timer Recording

For this timer function, several groups of days can be selected.

Ⓐ Daily recording from Monday to Friday.

Ⓑ Daily recording from Monday to Saturday.

Ⓒ Daily recording from Sunday to Saturday.

In step **4**, select the desired days by pressing ▼ or **DATE** −.

Timer Recording from External Signal Source

If Timer Recording is performed by a unit connected to the AV1, AV2 Socket or AV3 (Audio/Video Input sockets), select the A1, A2 or A3 for the programme position.

A1: Through the AV1 socket.
A2: Through the AV2 socket.
A3: Through the AV3 (AUDIO IN/VIDEO IN) sockets on front panel.

Setting other Programmes in Succession

Repeat steps **2–9**.

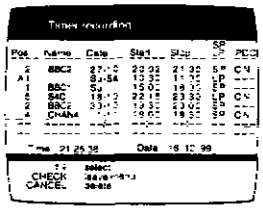
Checking a Timer Programme

- The VCR must be turned on, or the timer recording indicator "⏲" is lit.
- Confirm that the TV is on and the VCR viewing channel is selected.

Press **CHECK**. CHECK

- On Screen Display may be distorted in the PDC recording standby mode.

On Screen Display



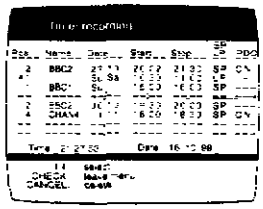
Cancelling a Timer Programme

- The VCR must be turned on, or the timer recording indicator "⏲" is lit.
- Confirm that the TV is on and the VCR viewing channel is selected.

1 Press **CHECK**. CHECK

2 Select the desired timer programme.

3 Press **CANCEL**. CANCEL



Note:

If a timer recording is not performed to the end (due to insufficient tape or cancellation by the user), the programmed timer recording data will be cancelled from the memory by 4 a.m. the next day.

However, if the Timer Record Function is activated at that time, the programmed timer recording data will be cancelled at 4 a.m. the next day.

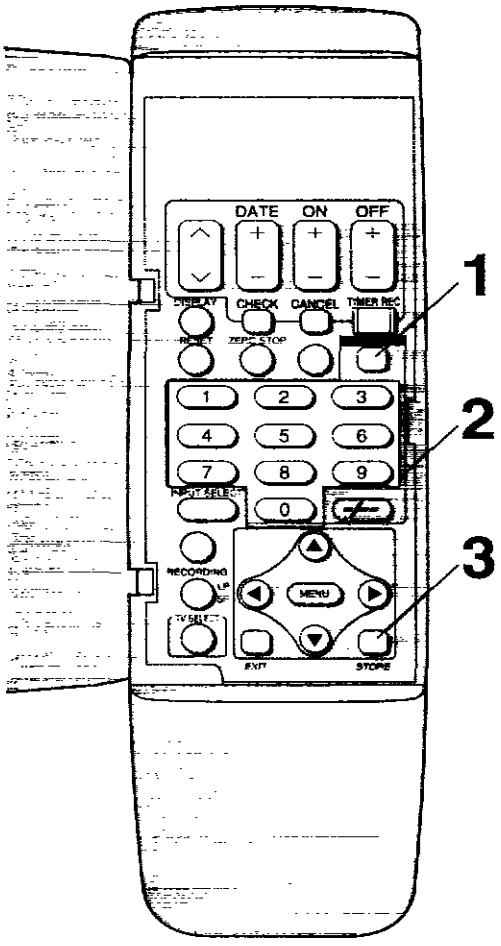
PDC (Programme Delivery Control)

The Programme Delivery Control (PDC) is a very convenient system which assures that the TV programmes you have programmed for timer recording will be recorded exactly from beginning to end, even if the actual broadcasting time differs from the scheduled time due to delayed start or extension of the programme duration. Also, if a programme is interrupted and for example, some special news item is inserted, the recording will also be interrupted automatically and resumed when the programme continues.

- In the case of PDC recording, use the **correct** time (PDC time) for recording the TV programmes. PDC recording is not performed when the time (PDC time) is incorrect, even if only by one minute, i.e. start time as published in TV programme guide in newspaper, magazine, teletext, etc.
- Since PDC signals are received when a recording is programmed using PDC, the power of the unit's tuner section is turned on and the programmed broadcasting is received. When a multiple number of programmes have been programmed for timer recording, all of the broadcasts concerned will be received in sequence.
- If the actual broadcasting times of timer recordings overlap (regardless of whether they are PDC-controlled), the recording that starts first always has priority, and the recording of the later programme will start only after the first timer recording has finished.
- When the PDC signal drops out because the broadcast signal is weak, or when a broadcasting station does not transmit a regular PDC signal, the timer recording will be performed in the normal mode (without PDC) even if it was programmed for PDC.
  In this case, even if the timer recording is performed, whatever has been programmed will not be cancelled at that particular time but at 4 a.m. on the following day.
- PDC recording is also possible during timer recording from AV2 socket.

Programming the Video Plus+ PlusCode

Programming is now easier than ever: simply enter the PlusCode provided in the programme schedule column carried by newspapers and magazines.
PlusCodes are numbers which are assigned to each programme listed in the TV programme schedule carried in newspapers and TV guides. When these codes are entered and **STORE** is pressed, the codes are converted into the actual programming.



Preparations

- Insert a cassette tape with an intact erasure prevention tab.
- Confirm that the TV is on and the VCR viewing channel is selected.

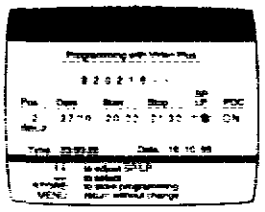
Operations — Display Symbols

1 Press **VIDEO PLUS+**.

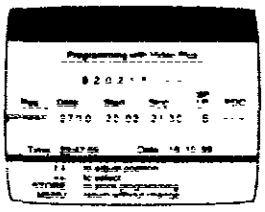
2 Enter a PlusCode.
Example: 920216

3 Press **STORE**.

On Screen Display



- Confirm that the programming contents are correct before setting the VCR to timer recording standby mode.
- The VCR will be in the timer recording standby mode after about 1 minute
- If the "—" appears in the programme position:



select the programme position of your VCR which receives the TV station you entered at step 2 using button ▲ or ▼.

- To extend the ending time or to make any corrections, use buttons ▲ ▼ ◀ ▶ or ∧ ∨.
DATE, ON, OFF.

Notes:

- To release from the standby mode, press **TIMER REC.**
- When the PlusCode is used for programming, the recording time may be slightly longer than the actual programme time.
- When programming two or more programmes, repeat steps 1–3.
- The procedures for checking and cancelling a timer programme are the same as on page 25.

Editing

Assembly Editing

This function can be used to make up an edited tape from other recordings or video sources.

This enables you to record a new segment immediately after a previously recorded segment.

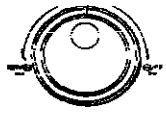
Preparations

- Connect a movie camera or another VCR to this VCR as shown.
- Insert a recorded cassette tape with an intact erasure prevention tab.
- Select the video source required by pressing **INPUT SELECT** to set A1, A2 or A3.
  - A1: Through the AV1 socket.
  - A2: Through the AV2 socket.
  - A3: Through the AV3 (AUDIO IN/VIDEO IN) sockets on front panel.

Operations

1 Press **PAUSE/STILL** on the recording VTR.

2 Search for the end of the previous recording.

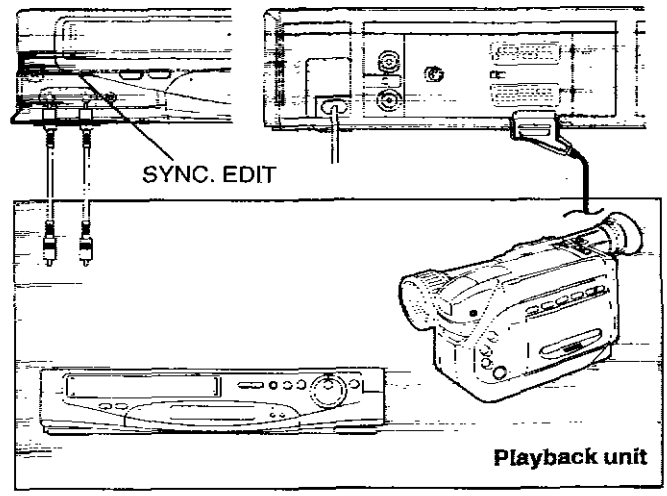


3 Press **REC** to switch the VCR from the pause mode to the recording standby mode.

4 Start the new recording by pressing **PAUSE/STILL** again.

5 Press **STOP** to stop recording.

Recording VCR



Synchronized Editing

It is possible to synchronize the playback start and stop of the Movie Camera with the recording start and stop of this VCR.

Preparations

- Connect a Movie Camera to this VCR with Synchro Connection Cord (VW-K1E).
- Select **One-Touch-Edit** to **OFF** for synchronized editing. (See page 37.)

1 Put the VCR in the recording pause mode by pressing **REC** and **PAUSE/STILL**.

2 Put the Movie Camera in the still playback mode at the point where you want to start editing.

3 Press **PAUSE/STILL** on the VCR.
- The Movie Camera changes over to the playback mode and the dubbing will start automatically.

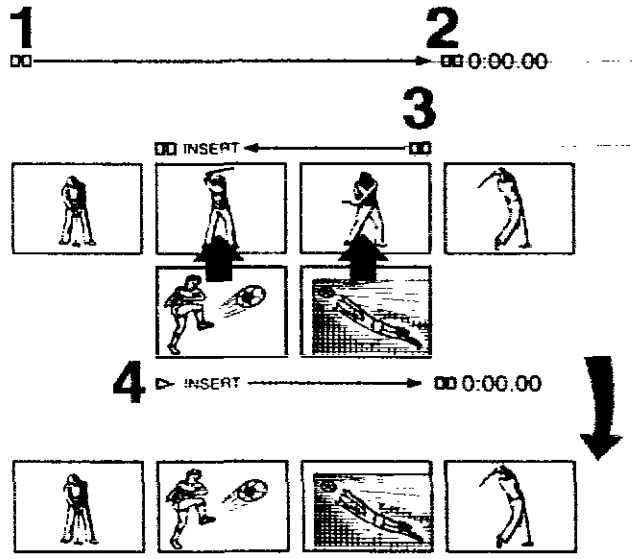
Synchronized Editing between the VCRs

When editing from another VCR equipped with Synchro Edit Socket, synchronized start and stop of both VCRs can be activated from this VCR.

The operation is the same as described for synchronized editing from a Movie Camera.

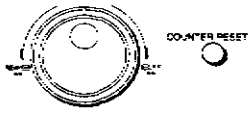
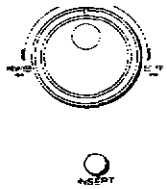
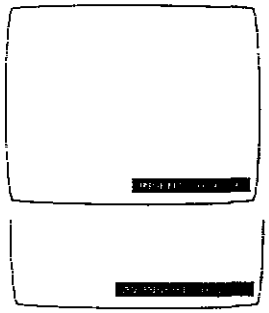
Insert Editing

This editing method allows a new recorded segment to be inserted into an existing recording to replace an existing segment of the same lenght.



Preparations

- Insert a recorded cassette with an intact erasure prevention tab.
- Select the video source required by pressing **INPUT SELECT** to set A1, A2 or A3.
  - A1: Through the AV1 socket.
  - A2: Through the AV2 socket.
  - A3: Through AV3 (AUDIO IN/VIDEO IN) sockets on front panel.

Operations	Display Symbols	
1		Press **PAUSE/STILL** on recording the VCR.
2		Search for the Edit out (ending) point, and set the counter to 0:00.00 by pressing **COUNTER RESET**.
3	 On Screen Display 	Search for the Edit in (starting) point, and press **INSERT**. • If you want to replace the sound too, press **AUDIO DUB** as well. (AV Insert Editing)
4		Start insert editing by pressing **PAUSE/STILL**. • The insert editing will finish when the counter reaches 0:00.00.

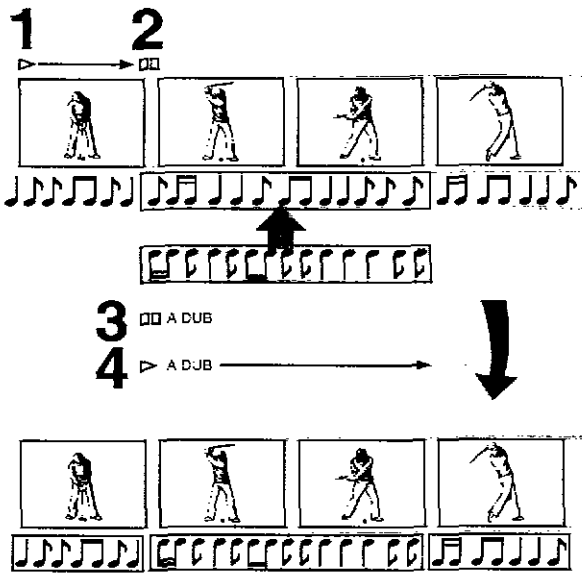
Note:
Insert Editing cannot be used on blank sections of a tape.
In this case use Assembly Editing first.

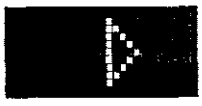
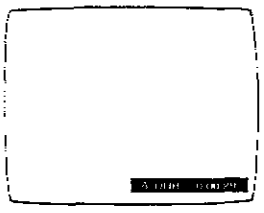
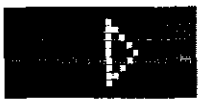
Audio Dubbing

This enables you to record new sound on a previously recorded tape.

Preparations

- Insert a recorded cassette with an intact erasure prevention tab.
- Select the video source required by pressing **INPUT SELECT** to set A1, A2 or A3.
  - A1: Through the AV1 socket.
  - A2: Through the AV2 socket.
  - A3: Through the AV3 (AUDIO IN) socket on front panel.



Operations	Display Symbols	
1 PLAY		Search for the starting point for audio dubbing.
2 PAUSE/STILL		Press **PAUSE/STILL** at the starting point.
3 AUDIO DUB	On Screen Display 	Set for audio dubbing by pressing **AUDIO DUB**. • On some televisions, the screen image may become unstable or begin to scroll at this point. However, this is not an indication of a malfunction.
4 PAUSE/STILL		Start recording the new sound by pressing **PAUSE/STILL**. • Stop recording by pressing **STOP**.

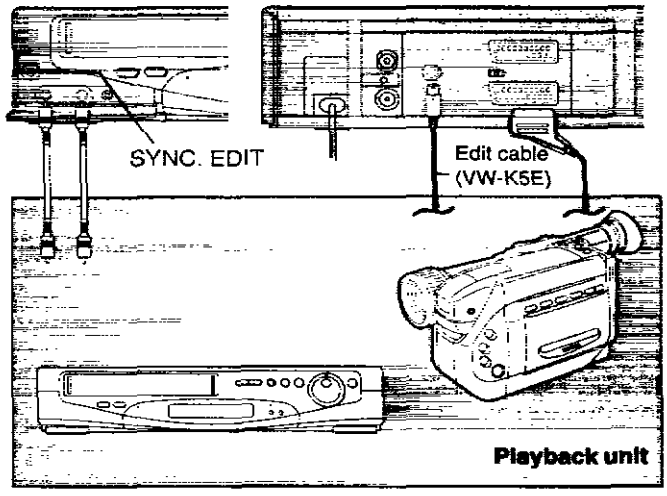
One-Touch-Editing

With this editing, it is easy to perform repeated assemble editing, insert editing or audio dubbing operations.

Preparations

- Before the VCR is connected to a movie camera or another VCR, select **One-Touch-Edit** to ON. (See page 37.)
  The playback VCR display or movie camera viewfinder image may be abnormal if the edit cable is connected with **One-Touch-Edit** left OFF.
- Connect a movie camera or another VCR to this VCR as shown.
- Use the **SYNC. EDIT** socket when connecting this unit to a VCR or movie camera equipped with a LANC socket.
- Insert a recorded cassette tape with an intact erasure prevention tab.
- Select the video source required by pressing **INPUT SELECT** to set A1, A2 or A3.
  A1: Through the AV1 socket.
  A2: Through the AV2 socket.
  A3: Through the AV3 (AUDIO IN/VIDEO IN) sockets on front panel.

Recording VCR



Operations

1 Press **PAUSE/STILL** on the recording VCR.

2 Search for the end of the previous recording.

3 Press **REC** to switch the VCR from the pause mode to the recording standby mode.

- The playback VCR will be in still mode.
- If **INSERT** or **AUDIO DUB** is pressed instead of **REC**, Insert Editing or Audio Dubbing can be performed.

4 Search for the Edit in (starting) point on the playback VCR.

5 Start One-Touch-Editing by pressing **PAUSE/STILL** again.

6 Press **PAUSE/STILL** at the Edit out (ending) point on the playback VCR.

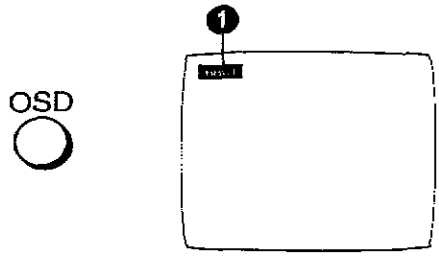
- For Editing in succession, repeat **4** to **6**.

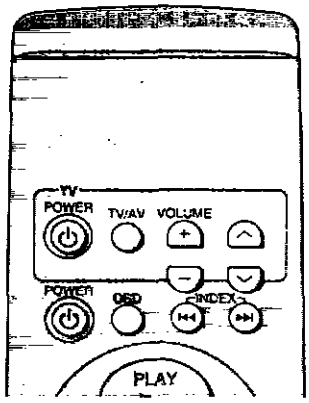
7 Press **STOP** to stop editing.

Other Functions

On Screen Display

Press **OSD** to make the On Screen Display appear on the TV screen.





1 TV station

Note:
When the item **"On screen display"** is set to OFF, the On Screen Display will not appear except for error message. (See page 36.)

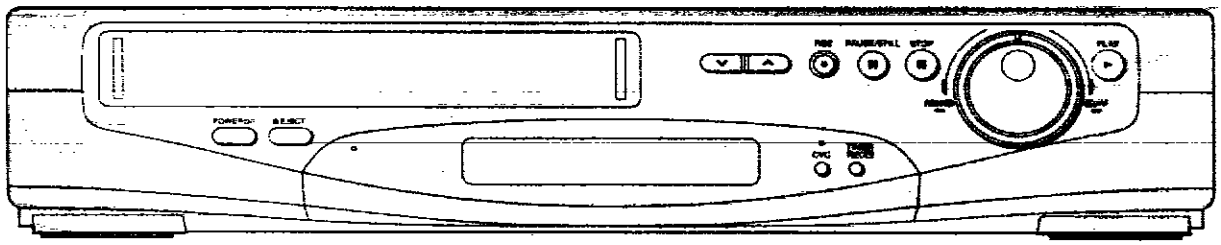
VHS Index Search System

It is very easy to find the beginning of each recording, because a special index signal is recorded at the start of each recorded segment on the tape.

Recording Index Signals
Index signals are recorded in following cases.
- When a recording is started by pressing **REC**.
- When **REC** is pressed during recording.
- When timer recording is activated.

For example:
Searching for the 2nd recorded segment in the forward direction.
Press **INDEX ⏭** twice during playback or stop mode.

- After finding the specific recorded segment, playback starts automatically.
- For the reverse direction, press **INDEX ⏮**.
- Up to 20 programmes can be searched for in both directions.
- When the opposite **INDEX** button is pressed, the number shall be decreased till 1.
- The figure on the display is decremented by 1 each time an index signal is located. Bear in mind that the display will be decremented in this way even while either **INDEX** button is being pressed.
- The INDEX search function can only work correctly, if the index signals are spaced at least 3 minutes apart in the SP mode and 5 minutes apart in the LP mode.



NTSC Playback

Tapes recorded in the NTSC system can be played back with this VCR via a PAL system TV set.

- The playback picture may roll up or down. If the TV set is equipped with a V-HOLD control, it may be possible to stop the picture movement by adjusting this control.
- Depending on the TV set used, the picture may be in black and white. However, this is not an indication of a malfunction.

Other Automatic Functions

Automatic Playback

When a cassette without an erasure prevention tab is inserted, the VCR starts playback automatically.

VTR-off Playback

When the VCR is off, an inserted cassette can be played back by pressing **PLAY**.

Automatic Rewinding

When the tape reaches its end during recording (except for timer recording) or playback, it will automatically be rewound to the beginning.

Automatic Switching Off and Ejection

When the VCR is switched off, and inserted cassette can be ejected simply by pressing **EJECT**. The VCR will eject the cassette and automatically turn itself off again.

Various Settings

Storing TV Broadcasts into your VCR

The VCR is fitted with its own TV tuner (just like a normal TV set) and can be tuned to receive up to 99 TV broadcast stations.

Settings Using On Screen Display

Setting the Clock of your VCR

The built-in clock is used to activate the timer for automatic recording and must be set to the correct time.

Setting the Remote Controller for Operation of your TV

You can operate some makes of TVs using the supplied Remote Controller after this setting up.

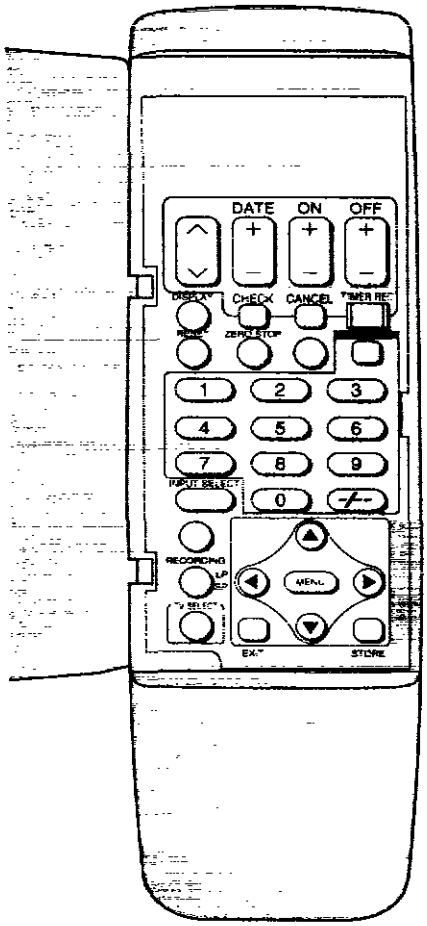
Storing TV Broadcasts into your VCR

Introduction

The VCR is fitted with its own tuner (just like a normal TV set) and can be pre-set to receive up to 99 TV broadcast stations.
If VCR is not correctly tuned by Auto setup, follow the procedure bellow.

Preparations

- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.



Manual Tuning Procedure

Follow the operation guide on screen display.

Operations

1 Press **MENU**.

2 Select **Settings**.

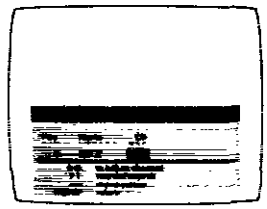
3 Select **Tuning**.

4 Select **Manual**.

5 Select desired programme position.

6 Select Channel **(Ch)**.

On Screen Display



7 Press **MENU**, and then press **EXIT**.

To change the programme position or TV station name:

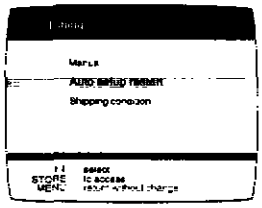
After step **5** but before step **7**, select the programme position **(Pos)** or TV station name **(Name)** item using ◄ ►, and then make the desired change.

Auto Setup Restart

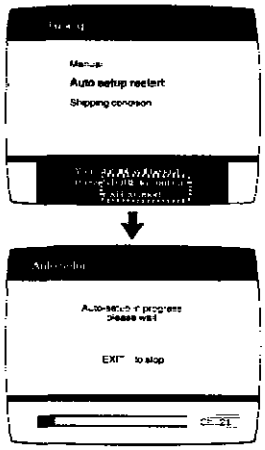
When your address changes, follow the procedure below.
Follow the steps **1** to **3** on page 34.

4 Select **Auto setup restart**.

On Screen Display



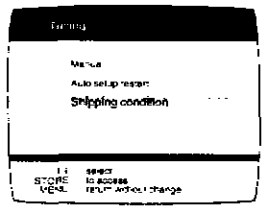
5 Press **STORE**.



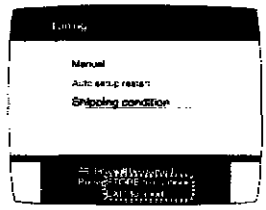
Shipping Condition

If you want to return the VCR to the factory-preset condition, follow the procedure bellow.
Follow the steps **1** to **3** on page 34.

4 Select **Shipping condition**.



5 Press **STORE**.



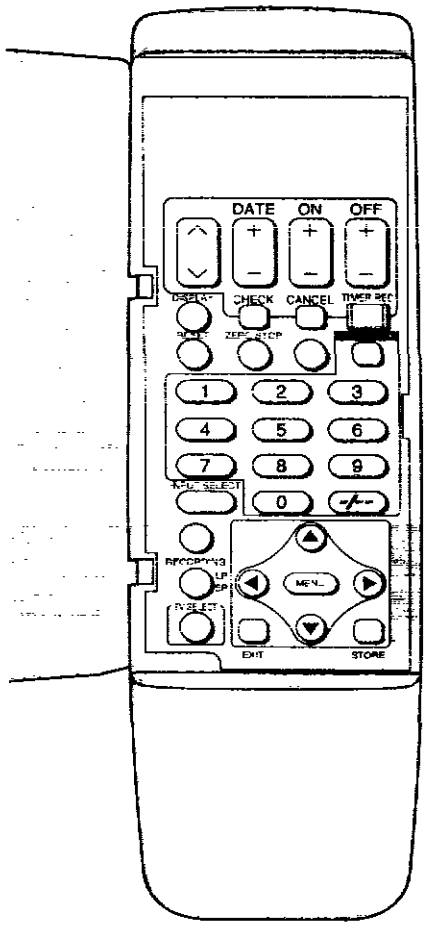
6 Press **STORE** again.

Note:
To re-tune VCR, disconnect mains lead and then reconnect mains lead. If VCR is off, turn on the VCR. Auto setup starts.

Settings Using On Screen Display

Preparations

- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.

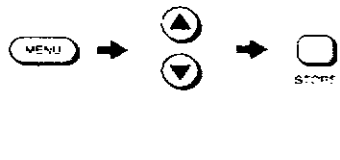


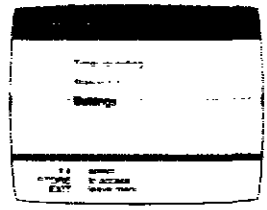
VCR functions

On Screen Display

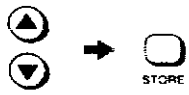
1 Press **MENU**, and then select **Settings**.

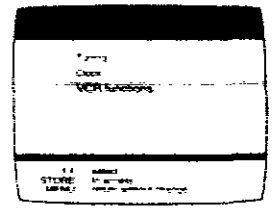
On Screen Display



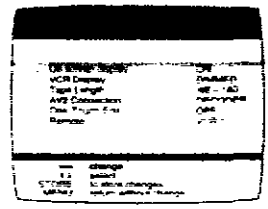


2 Select **VCR functions**.

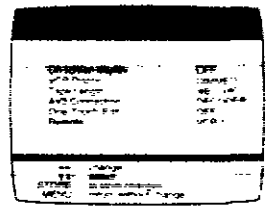




3 Select **On screen display**



4 Select **ON** or **OFF**.

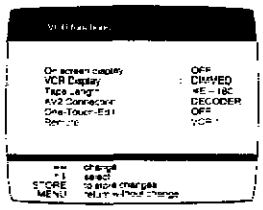


ON: The On Screen Display will appear on the TV screen by pressing **OSD**.
OFF: The On Screen Display will not appear even if **OSD** is pressed.

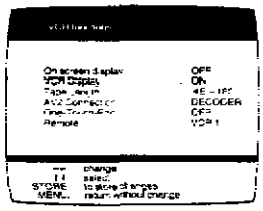
VCR Display

1 Select **VCR Display**.

On Screen Display



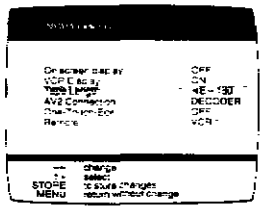
2 Select **ON, OFF** or **DIMMED**.



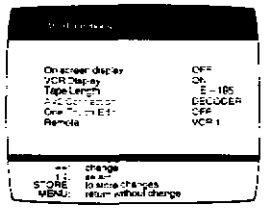
ON: When VCR is turned off, the characters are lit in the VCR display.
OFF: When VCR is turned off, the characters are not lit in the VCR display.
DIMMED: When VCR is turned off, the characters are dimmed in the VCR display.

To select the Corresponding Cassette Tape Length for Displaying the Approximate Remaining Tape Time

1 Select **Tape Length**.



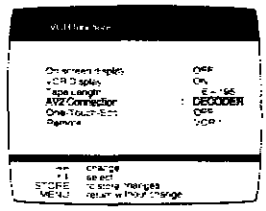
2 Select the corresponding cassette tape length.



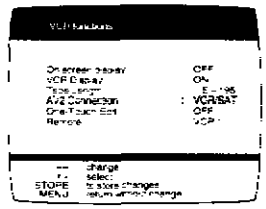
◄ E-180: For E30, -60, -90, -120 and -180 tapes.
E-195: For E195 tape.
E-240: For E240 tape.
E-260 ►: For E260 and -300 tapes.
●The times displayed may differ depending on the tape used.

AV2 Connection

1 Select **AV2 Connection**.



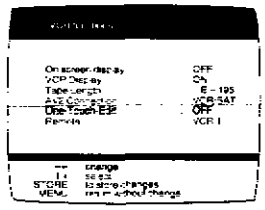
2 Select **VCR/SAT** or **DECODER**.



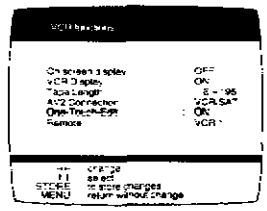
VCR/SAT: When another VCR is connected to the **AV2** socket.
DECODER: When the decoder is connected to the AV2 socket.

One-Touch-Edit

1 Select **One-Touch-Edit**.



2 Select **ON** or **OFF**.

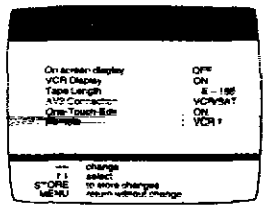


ON: For One-Touch-Editing.
OFF: For editing with editing controller or synchronized editing.

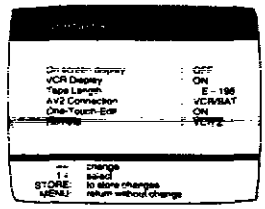
Remote Control Mode

1 Select **Remote**.

On Screen Display



2 Select **VCR1** or **VCR2**.



VCR1: Set to this position on both the VCR and remote controller for normal use with one VCR.

VCR2: Set to this position when using two Panasonic VCRs.
This allows to operate VCR1 or VCR2 with remote controller.

- After changing the remote control mode, press ▲ or ▼ while holding **TV SELECT** to change the remote control mode of the remote controller. If this is not done, it will not be possible to operate the VCR using the remote controller. (See page 13.)

After All Settings are selected

Press **STORE**, and then press **EXIT** to make On Screen Display disappear.

Setting the Clock of your VCR

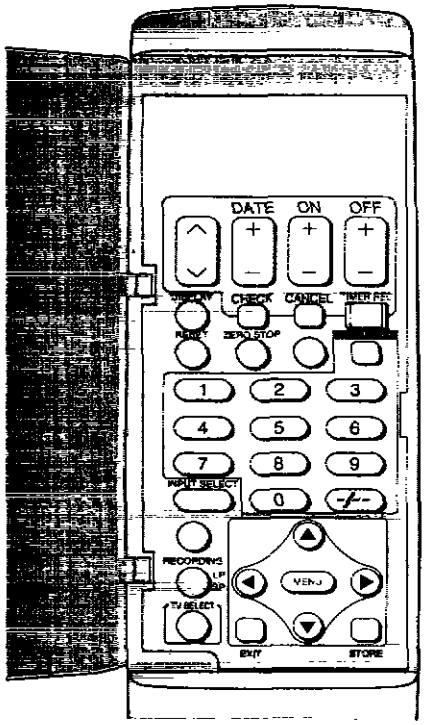
The built-in clock is used to activate the timer for automatic recording and must be set to the correct time.

The built-in digital clock employs the 24-hour system.

If VCR is not correctly set by Auto setup, follow the procedure below.

Preparations

- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.



Manual Clock Setting

Follow the operation guide on screen display.

Operations

1 Press **MENU**, and then select **Settings**.

2 Select **Clock**.

3 Select **Manual setting**.

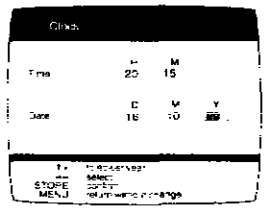
4 Set **Time (H/M)**.
- When it is kept pressed, the indication changes in 30-minute steps.

5 Set **Date (D)**.

6 Set **Month (M)**.

7 Set **Year (Y)**.

On Screen Display



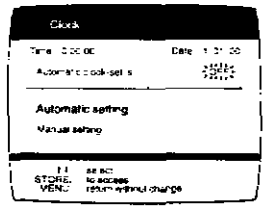
8 Press **STORE**.
- The clock will start.

9 Press **EXIT**.

Automatic Clock Setting

Follow steps **1** to **2** of the above procedure.

3 Select **Automatic setting**.

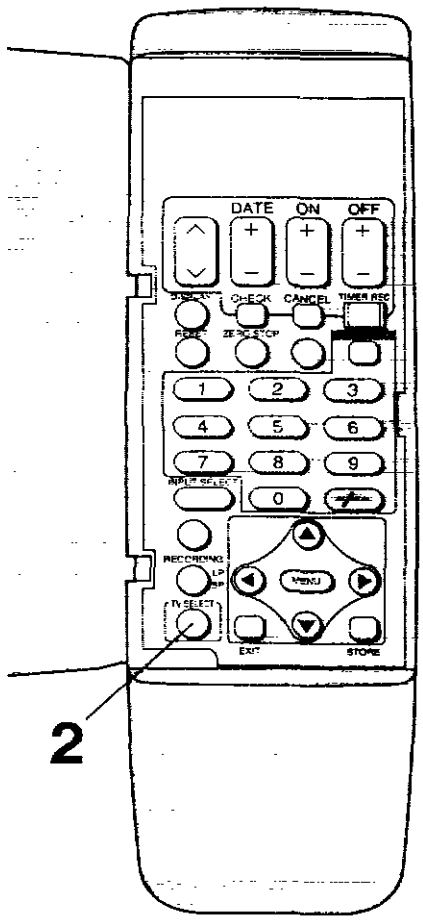


4 Press **STORE**.
- The clock is set automatically.

Notes:
- The clock operates for at least 60 minutes by its backup system in the event of power failure.
- When the item **"Automatic clock-set is"** is ON on screen display, Automatic time correcting function is activated.
  The Automatic time correcting function will only work when the VCR is in standby. This function will not work during timer recording standby mode.

Setting the Remote Controller for Operation of your TV

You can operate some TV manufacturers (see next page) using the supplied Remote Controller after this setting up.



Preparation

Install the batteries in the remote controller. See page 13.

Operations

1 Turn on the TV.

2 Press corresponding operation button to your TV manufacturer (see next page) while keeping **TV SELECT** pressed.

- If setting is correct, TV will be turned off automatically.

Note:

Some TV models cannot be operated using this remote controller.

TV Manufacturer	Operation Button
Panasonic	TV SELECT + ∧
	TV SELECT + ∨
	TV SELECT + DATE +
	TV SELECT + DATE −
GRUNDIG, Blaupunkt, SIEMENS	TV SELECT + ON +
PHILIPS, LOEWE, SAMSUNG, RADIOLA, DUAL, PYE, BUSH, GOODMANS, ELEMIS, CURTIS	TV SELECT + ON −
SONY	TV SELECT + OFF +
METZ	TV SELECT + OFF −
FERGUSON, THOMSON, TELEFUNKEN, GOODMANS, SABA	TV SELECT + DISPLAY *
FERGUSON, THOMSON, TELEFUNKEN, GOODMANS	TV SELECT + CHECK *
FERGUSON, THOMSON, TELEFUNKEN, GOODMANS, SABA	TV SELECT + CANCEL *
FERGUSON, TELEFUNKEN, GOODMANS, SABA	TV SELECT + TIMER REC *
TELEFUNKEN	TV SELECT + RESET *
FERGUSON, THOMSON, TELEFUNKEN, GOODMANS, SABA	TV SELECT + ZERO STOP*
FERGUSON, THOMSON, TELEFUNKEN, GOODMANS, SABA, NORDMENDE, BRANDT	TV SELECT + VIDEO PLUS +
HITACHI	TV SELECT + 1
	TV SELECT + 2
SIEMENS	TV SELECT + 3
SAMSUNG	TV SELECT + 4

TV Manufacturer	Operation Button
ITT, NOKIA, SELECO	TV SELECT + 5
NOKIA, SALORA	TV SELECT + 6
MIVAR	TV SELECT + 7
TOSHIBA	TV SELECT + 8
SANYO	TV SELECT + 9
JVC	TV SELECT + 0
SHARP	TV SELECT + INPUT SELECT
MITSUBISHI	TV SELECT + ◀
TELEFUNKEN	TV SELECT + EXIT *

When the TV manufacturer is Panasonic or HITACHI:
When the TV's power is turned off in step **2** above, turn it back on and adjust the TV's volume using this remote controller. The volume can be adjusted if the operation button matches the TV manufacturer.
If it is not possible to adjust the TV's volume, try pressing the other operation button to match the TV manufacturer again until the volume can be adjusted.

***When the TV manufacturer is FERGUSON, THOMSON, TELEFUNKEN, GOODMANS, SABA, NORDMENDE or BRANDT:**
How to change the programme position of TV:

1 Press ∧ **(TV)** to make **POS** appear on screen display.

2 Press **VOLUME** + or −.
- To adjust the TV's volume using the remote controller after that, press ∧ **(TV)** to make **POS** on screen display disappear and then adjust the volume. For some models, **POS** disappears automatically after several seconds. In these cases, this operation is not necessary.

Note:
FERGUSON, THOMSON, TELEFUNKEN, GOODMANS and SABA have plural operation buttons. Although some models may operate with any of these operation buttons, other models may operate with only one operation button. Check each operation button in turn, and set the optimal operation button.

Helpful Hints

Before Requesting Service

Before requesting service, check the following points once again.

Precautions

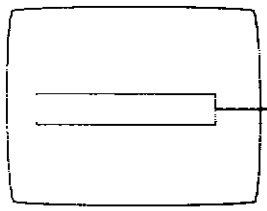
Please read these cautions before you operate this VCR.

Specifications

Before Requesting Service

Before requesting service, check the following points once again.

Message of On Screen Display



MESSAGE	CAUSE	REMEDY
This action is not possible before time and date is set	**VIDEO PLUS+** is pressed when date and time are not set.	Set date and time.
Please insert Video tape	**REC, PLAY, FF, REW, INSERT** or **AUDIO DUB** is pressed when no cassette in the VCR.	Insert a video cassette.
Please use unprotected tape	**REC, INSERT** or **AUDIO DUB** is pressed without tab of Cassette.	Use a cassette with tab.

Self Test Indication

This VCR has a self-diagnosis and display function. If the VCR detects trouble during installation or during use, the following indications automatically appear in the VCR display. Indications are displayed in the form of a single English letter plus two numbers such as [H01].

INDICATION	CAUSE	REMEDY
H □ □	Some trouble has occurred. (Numbers following H and F differ according to the status of the VCR.)	Consult your dealer for further advice.
F □ □		

VCR will not operate correctly			
SYMPTOM	**CAUSE**	**REMEDY**	**CHECKED**
VCR display is not illuminated.	Mains lead is not connected.	Reconnect mains lead to VCR.	
	VCR Display setting is OFF.	Set **VCR Display** to ON or DIMMED. See page 37.	
VCR display is illuminated but VCR will not operate.	VCR is in timer mode.	Press **TIMER REC** to operate VCR manually.	
	Safety devices are operating.	Disconnect mains lead and wait for 1 minute. Reconnect mains supply and check functions.	
	Condensation may have formed.	Do not operate VCR for 1 hour.	

Playback will not operate correctly			
SYMPTOM	**CAUSE**	**REMEDY**	**CHECKED**
Picture noisy or not in colour. Horizontal bars or lines run down the screen.	Tracking is not correct.	Adjust the tracking. See page 19.	
	TV set is not tuned to VCR.	Operate **RF OFF/TEST SIGNAL** on VCR and check TV tuning. See page 10.	
	Video heads are clogged or worn.	Consult your dealer for further advice. Head cleaning by service agent is not covered by warranty.	

Recording will not operate correctly

SYMPTOM	CAUSE	REMEDY	CHECKED
"[redacted]" indication flashes whenever recording is attempted.	Erasure prevention tab on cassette is broken off.	Use tape with intact erasure prevention tab, or cover tab hole with adhesive tape, if original recording is no longer required.	
Picture is recorded with noise or blank screen.	Aerial or aerial lead is defective.	Check aerial connection to VCR. See page 8. Check your normal TV picture. If there is no picture, check your aerial.	
	VCR is not correctly tuned.	Re-tune VCR. See pages 34–35.	
	A1, A2 or A3 is selected.	Select the required TV programme.	
Timer recording cannot be performed.	Clock or calendar is incorrectly set.	Check clock and calendar. Set to present time. (Note this is a 24 hour clock.) See page 39.	
	Recording start or end time setting is incorrect.	Set recording start and end time correctly.	
	VCR is not set for timer recording.	Press **TIMER REC** after programming for timer recording.	
AV external recordings cannot be made.	A1, A2 or A3 is not selected.	Select A1, A2 or A3 by pressing **INPUT SELECT**.	
	External AV connections are incorrect.	Check that connections for external video and audio source are correct. See page 27.	

Remote controller will not work correctly

SYMPTOM	CAUSE	REMEDY	CHECKED
Remote controller does not operate correctly.	Remote controller transmitter beam is not reaching VCR.	Ensure that remote controller is being pointed at VCR and that transmitter beam is not obstructed.	
	Distance is too far.	Use remote controller within 7 m of VCR. If this range is not possible, replace batteries.	
	Batteries are exhausted.	Replace batteries. Note precaution for replacement on page 13.	
	Batteries are incorrectly fitted with (+/−) reversed.	Fit batteries correctly as shown on page 13.	
	Wrong remote control mode has been selected.	Set to the correct remote control mode. See page 13.	

Precautions

Please read these cautions before you operate this VCR.

Avoid Sudden Changes in Temperature

If the VCR is suddenly moved from a cold place to a warm place, condensation may form on the tape and inside the VCR.

Humidity and Dust

Avoid places where there is high humidity or much dust, which may cause damage to internal parts.

Do Not Obstruct the Ventilation Holes

The ventilation holes prevent abnormal increases in temperature. Do not block or cover these holes. Especially avoid covering the holes with soft materials such as cloth or paper.

Keep away from High Temperature

Keep the VCR away from extreme direct heat such as direct sunlight, heating radiators, or closed automobiles.

Keep Magnets away

Never bring a magnet or magnetized object near the VCR because it will adversely affect the performance of the VCR.

No Fingers or Other Objects Inside

Touching internal parts of this VCR is dangerous, and may cause serious damage to the VCR. Do not attempt to disassemble the VCR. There are no user serviceable parts inside.

Keep Water away

Keep the VCR away from flower vases, tubs, sinks, etc.
CAUTION: If liquids are spilled into the VCR, serious damage could occur. If you spill any liquid into the VCR, consult qualified service personnel.

Cleaning the VCR

Wipe the VCR with a clean, dry cloth. Never use cleaning fluid, or other chemicals. Do not use compressed air to remove dust.

Stacking

Place the VCR in a horizontal position, and do not place anything heavy on it.

Video Head Clogging

The video heads place picture signals on the tape during recording and read picture signals from the tape during playback and they are, therefore, of critical importance for the picture quality. To ensure that they can always provide optimum picture quality, this VCR is equipped with an Auto Head Cleaning Function that removes tape particles and dust from the video heads. However, if the VCR is used over extremely long periods of time, these heads may still become dirty and clogged. In such a case, the signals can no longer be recorded correctly, and the playback picture will be distorted accordingly. This is the case, for example, during the playback of a tape, the sound is reproduced normally, but no picture is seen, or the picture is greatly distorted. When such a symptom case occurs have the recorder checked by qualified service personnel.

Head cleaning by service agent is not covered by warranty.

Condensation may form in the VCR if:

- The VCR is in a room where the heater has just been turned on.
- The VCR is in a room with steam or high humidity.
- The VCR is brought from cold surroundings into a well-heated room.
- The VCR is suddenly brought from cool surroundings, such as an air-conditioned room or car, to a place which is hot and humid.

Note:
Do not operate the VCR for at least 1 hour if any of the above conditions occur.
This VCR does not incorporate a dew sensor.

Tape Care

Some do's and don'ts on tape care.

DO:
1) Use a good quality branded tape, such as Panasonic.
2) Keep in the Box supplied with your tape, or a video case, when not in use.
3) Try to use all the tape on a cassette by making recordings not only at the tape start but also in the middle and end sections. This will avoid many repeated recordings at the beginning of the tape resulting in premature wear.
4) Take care to insert a tape correctly into the VCR to avoid damage.

DO NOT:
1) Expose the tape to high humidity or temperature.
2) Expose to liquid.
3) Expose to dust particles by storing directly on a carpet for example.
4) Use a damaged tape or attempt to repair.
5) Dismantle the cassette housing.
6) Attempt to lift the front cassette flap or touch the tape surface.

Specifications

NV-SD450B...(U.K. model)

304

Power Source:	220–240 V AC 50–60 Hz
Power Consumption:	18 watts

Video Recording System:	2 rotary heads, helical scanning system		
Video Heads:	4 heads		
Tape Speed:	SP; 23.39 mm/sec.		
	LP; 11.7 mm/sec.		
Tape Format:	VHS tape		
Record/Playback Time:	SP; 240 min. with NV-E240		
	LP; 480 min. with NV-E240		
VIDEO			
Television System:	CCIR; 625 lines, 50 fields, PAL colour signal		
Modulation System:	Luminance; FM azimuth recording		
	Colour signal; converted subcarrier phase shift recording		
Input Level:	AV1/AV2;	1.0 Vp-p,	75 ohm, terminated
	VIDEO IN (AV3) (PHONO);	1.0 Vp-p,	75 ohm, terminated
Output Level:	AV1/AV2;	1.0 Vp-p,	75 ohm, terminated
	RF Modulated;	UHF channel 36 (±6),	75 ohm
AUDIO			
Input Level:	AV1/AV2;	−6 dBV,	more than 10 kohm
	AUDIO IN (AV3) (PHONO);	−10 dBV,	more than 47 kohm
	MIC (M3);	−70 dBV	
Output Level:	AV1/AV2;	−6 dBV,	less than 1 kohm
Audio Track:	1 track (Normal-mono only)		
Video Horizontal Resolution:	Colour; more than 240 lines (SP)		
Signal-to-Noise Ratio:	Video; more than 43 dB (SP)		
	Audio; more than 43 dB		
Audio Frequency Response:	80 Hz–10 kHz		
Operating Temperature:	5°C–40°C		
Operating Humidity:	35%–80%		
Weight:	4.8 kg		
Dimensions:	430 (W)×91 (H)×312 (D) mm		
Standard Accessories:	1 pc. RF Coaxial Cable		
	1 pc. Remote Controller		
	2 pcs. "R6" size batteries		
	1 pc. AC Mains Lead		

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

[D]
VQT5966

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